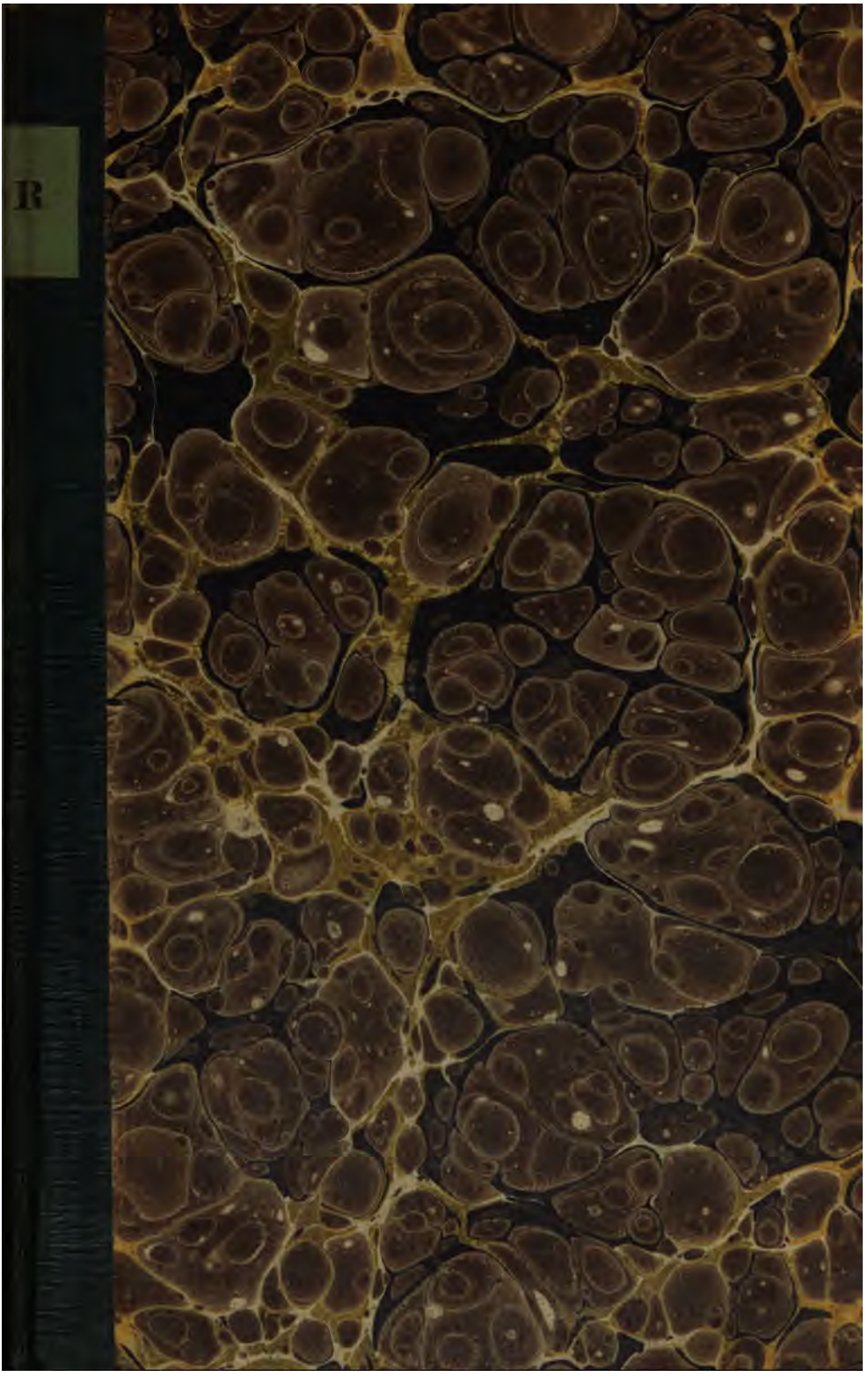

THE

INJURY AND WASTE OF CORN

FROM THE PRESENT PRACTICE OF

TOO THICKLY SOWING.

BY

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PREFACE.

THE favourable notice that has been taken by many of the newspapers and periodicals of the first edition of this little work, has caused a demand for which the copies then printed have been far from supplying. I am therefore induced to republish it —and, to further assist the investigation which the subject requires, and in reply to the many questions which I have had put to me, have added details of my practice, which I trust will be seen are only given to prove the successful carrying out of the principle laid down, and not for the purpose of holding up a course of husbandry which differs widely from larger and older farmers than myself. I have reason to think that some hundreds of farmers will, from what I have said, and from having this year seen my crops, be induced to lessen the quantities of their seed corn from what they have been in the habit of sowing; and although I cannot expect they will at once come down to my diminutive proportions, still I think I have established the principle that the quantity of seed should be in relative proportion to the number of plants which the space will permit to reach maturity, and that to sow much beyond this must be highly injurious.

I have this year had many gentlemen to see my crops, desirous of ascertaining, by inspection, the result of such very thin sowing as I recommend; and although my harvest is now gathered in, I can still by the stack yards show what has been so produced, and shall be happy to find practical

farmers thus testing the result. I recommend to any agriculturist, who can conveniently do so, to visit the farm of G. R. Smith, Esq. at Selsdon, three miles south of Croydon. I have now there, and of this year's growth, fourteen large stacks of corn and three of clover, and root crops for the fatting of two hundred wethers and one hundred couples, and twelve oxen. They will find this is the produce of a poor hill chalk farm of one-hundred and forty arable acres only, without the aid of any purchased manure, and precisely on the system here laid down. I recommend the Selsdon farm, as that has been cultivated by me nine years without any interruption—whereas my other farms are on short leases, and one has been in my possession only three years, having previously had three tenants in seven years, and the other I had intended to leave at Michaelmas last.

In thus holding up my practice to public inspection, I feel I may by some be thought to have intruded myself too much—still I hope consideration will prevent this. I have started a new theory, and which in argument appears unanswerable—but in farming, practice on reasoning alone leads generally to error; and therefore, after stating my practice and my reasons for it, I express my wish that my farming may be seen—for seeing is believing—and by that test I would have it tried.

H. D.

1*st September*, 1843.

The Injury and Waste of Corn from the present Practice of too thickly Sowing.

As in the following paper I shall propose to the cultivators of my country a very considerable reduction in the quantities of seed which they have been accustomed to use, and shall endeavour to show to them that the question requires their serious attention, not only for the economy of seed, but principally as very materially affecting the after growth of their corn; it may be well to premise that this recommendation does not emanate from a theoretical agriculturist, farming only in his closet and over his books, or from one who follows agriculture as an amusing occupation; but on the contrary, that besides being largely engaged as a land agent, and in the cultivation of farms for the proprietors, I am a practical and successful farmer on my own account of between seven and eight hundred acres of highly-rented poor land; and, moreover, that whatever I am about to recommend, I have not only long and successfully practised, and on a large scale, but that I have ever been willing and ready to support, by showing the crops in this way produced. And I am sure that any farmer who witnesses these will readily allow that with the adoption of the system of thin sowing I grow very large crops, much beyond the general average, and on soils of a very

inferior description, and with less than the ordinary expenditure in labour and manure.

There are few persons who seriously take into consideration how small a return is commonly realised from the seed sown, and how large a proportion of that return is again swallowed up for seed.—Let us take wheat for instance. The practice throughout England is to sow two and a half or three bushels per acre, and the yield is seldom forty bushels, and more commonly only twenty bushels, and one-tenth at least of the crop grown is consumed as seed. These facts, and the knowledge that a single grain of wheat, planted where it has room to tiller out, will readily produce four hundred-fold, and often very much more, has induced me, in the course of the last eleven years, to make a variety of experiments—the results of which have shown me that, independent of the waste, *a positive and serious injury is done to the crop from sowing so much seed*, and in result is perfectly analogous to attempting to feed four animals on a pasture sufficient only for one; and in consequence I have gradually reduced my proportion of seed wheat from three bushels per acre, which was my practice, down to about three pecks, which reduction I have accomplished to the evident improvement of my growth of corn. And I have at this time (July, 1843), the finest promise of a crop on all my farms from this latter quantity, and this, too, after one ploughing

of pea and bean stubbles, and upon soils very low in the scale of natural fertility, and without having had any fallow or having had applied any manure for some years.

In order to show that it is not by any artificial aid that I have grown the crops produced on my farms, and in reply to the questions which I have so often had put to me as to what is my practice, I go into the following details. My course of cropping is as follows, viz :—

1st Year ..	RYE	For green Meat and feeding off with Sheep in April, May, June, and July, and followed by	
„	TARES..		
„	MANGEL WORZEL	With a liberal dressing of Farm-yard Dung.	
„	SWEDES		
„	CABBAGES		
„	TURNIPS.....		
2nd Year..	OATS or BARLEY with CLOVER.		
3rd Year ..	CLOVER, twice mown for HAY.		
4th Year ..	BEANS or PEAS	The Beans having Turnips sown betwixt the rows, and which come into feed in September and October.	
5th Year ..	WHEAT.		

By this rotation of cropping I never grow two crops of a kind in succession, and I get three green crops and three corn crops in five years. The produce of corn and cattle food grown by me in this way, I do not hesitate to say, is very much larger than I could obtain by any other, and at less expense and far less hazardous.

My practice is to drill every thing (clover seed alone excepted); to carefully horse-hoe, hand-hoe, and weed, so that the land may be kept perfectly free from weeds, and the soil between the rows may be stirred and

receive the benefit of pulverisation and aration, advantages of which gardeners are sensible—but by farmers are lost sight of, or not sufficiently attended to. My rye and tares, for green feeding, are sown in rows at nine-inch intervals; all my white corn at twelve inches; and my pulse at twenty-seven inches; and my root crops on the ridge at twenty-seven inches. When I have established this routine, the only dressing given is for the root crop, and that with manure produced on the farm, by the consumption by fatting stock of the mangel worzel and half of the Swedes, and of hay and straw, and fodder by other stock in the yards. I fatten a large proportion of sheep, at least two and a half in the year for every arable acre; these consume on the land, having oil cake, and in folds, all the turnips and cabbage, and half the rye, tares, and Swedes--the feeding being so arranged that the folds extend alike over the parts cleared with that fed. My proportions of seed per acre, and times of sowing, are as follows, viz:—

Of Rye.....	1½ Bushel,	..	in August and September.
" Tares	1½ "	..	in 3 sowings in Aug. Sept. and Oct.
" Mangel Worzel	6 lbs.	.....	in April.
" Swedes	1 quart	....	in May.
" Turnips	1 "	....	in July.
" Cabbages.....	1 every 3 feet,		in June.
" Oats	8 pecks	....	in February and March.
" Barley.....	7 "	....	in Feb. March, & April.
" Wheat.....	3 "	....	in September and Oct.
" Peas	8 "	....	in January and February.
" Beans	8 "	....	in September and Oct.

Between the crops which are sown at twenty-seven inches intervals, I constantly in the spring use the horse-hoes; beginning with tines which bring to the surface all root-weeds, and pulverise the soil; and alternately with knives, which cut off all on the surface. By the free use of these hoes, and by hand-hoeing the narrow sown corn, and by drawing all weeds from out of the rows, and by using Finlayson's harrow after most ploughings, I have brought my land clean and without fallowing; and I am sure I grow better Swedes and turnips after rye and tares than I used to do after a fallow; and am much less attacked by the fly.

My ploughings are all as deep as I can afford to give time and strength to them. I occasionally use the subsoil and trench ploughs; going fifteen and sixteen inches deep, and bringing all the fresh soil to the surface that I can get up.

My farms are naturally very poor; two are principally gravel—in parts very boggy and springy, wet in winter and burnt up in summer, reclaimed from heath only thirty years; and the other a hill farm with but few inches of soil above chalk. These farms have been greatly improved by the free use of the subsoil and trenching ploughs, but are only kept in profitable tillage by the general economy in husbandry, and the large returns I have obtained.

In this way, and on these farms, I have

frequently produced above five quarters of the best white wheat to the acre, and have grown above thirteen quarters of oats and above eight of barley; and my clover and turnip crops are always remarkably good.

Having from this brief detail of my practice shown the success on an extensive scale with thin sowing, I will explain why it is that three pecks of seed wheat per acre must be much nearer the correct quantity than ten or twelve pecks, and that any surplus of seed beyond a bushel must be very injurious to the latter growth of the crop.

The produce of an ear of thick sown wheat yields about forty grains (I say thick sown, for thin sown yields very much more), and therefore the produce of an acre (or twenty bushels, the ordinary average) must be, no matter how much has been sown, the growth of the ears from one-fortieth, or two pecks of seed (and that, too, is allowing only *one* ear to grow from each grain, and forty grains from an ear). This being the fact, of what use, I ask, or what becomes of the remaining eight or ten pecks of seed which are commonly sown? But in allowing one ear only to grow from a grain of seed, and each ear to contain only forty grains, I am far from taking what in reality should be the produce; for a single grain having room will throw up ten or twelve ears, and these ears will each contain from sixty to eighty grains; and hence any provision for the loss of seed from vermin

or birds is unnecessary, for supposing half or much more of my small allowance to be taken away or destroyed, the deficiency of plant is immediately met by the larger size of the ear and by the tillering which is made, and the additional ears so produced, wherever room admits of the increase. Among the many proofs I have had of the advantage from thin sowing, the following is a striking and among my people well-known fact. In the autum of 1840, I had to sow with wheat a field of eight acres, and I gave out seven bushels for the seed, but owing to an error of the drill-man in setting the drill, when he had sown half of the field, he found he had not put on half of the seed; but that I might not discover, by the overplus, his error, he altered the drill, so as to sow the rest on the remainder of the field, and in this way one half of the field had little more than two pecks to the acre, whilst the rest had nearly four pecks. I did not know of the error, and was surprised and frightened in the winter by finding part of the field so thin, and had not the rest of the field looked so much better, should have ploughed it up; but at harvest the thinnest sown half proved the best, and I should never have known of the error in the sowing but for this fact having induced the carter to point it out to me.

Were the evil of the present practice confined to the waste of seed, the loss to the farmer is considerable, and is frequently

equal to the rent he pays for the land. I am also about to prove it is of far too great importance to the nation, not to be deserving of investigation; but the loss is not limited to the waste of seed, great as that is, for there are many other ills attendant upon thick sowing, which greatly diminish the return, and are of far more importance. At first, no matter how much seed has been sown, nearly every grain vegetates and finds space to grow, and in the early stages, when the air and soil are moist, and the plants small, there is food for all. But as the plants increase in size, a struggle for room and nourishment commences, which increases with their growth, and finally terminates by the destruction of the weaker by the stronger plants; but not until after a contest, lasting up to harvest, which leaves the survivors stunted, and the soil exhausted by having had to support three plants instead of one, and producing mischief which is frequently the cause of blight, mildew, and the falling of the crop.

That this struggle does take place, is shown by my calculation of the number of straws that can rise into ear, compared with the grains sown, and is plainly betrayed by the yellow sickly colour of the thick wheat in the spring, when all other vegetation puts on its greenest tints, and by the uneven crop and the small size of the underly ears at harvest as compared with the thinner sowing.

Nature in their growth plainly betrays the

evils of thick plantations of every description, by the dwindling plants, and by their sickly appearance, and the planter and the gardener are ever ready to take warning by the lessons she thus affords. The planter and forester well know the after ill effect of an over-crowded plantation; and the gardener by the free use of his hoe is careful to give ample room to each plant; it is the farmer only, who guided by his eye, is pleased in the early stages of his crops to see his ground well covered with plants of young corn, without stopping to reason upon the room wanted, and the power of the soil to bring them to maturity. That the sowing of too much seed must be injurious in the after-growth, appears to me self-evident, for in what way can nature do away with the extra plants so produced, without injury to the remainder? And it is to this, I repeat, I would principally ascribe the mildew and blight, and falling of the crop; for so far my practice proves it, that since I have taken to sow only a bushel of wheat per acre, and I have done so now for some years, and on many hundreds of acres of wheat, I have rarely found any portion affected by any disease; and so satisfied am I by the result of my practice, as shown by my crops this year, that although I last year sowed so little, I this year intend to farther reduce the quantity.

The importance of the inquiry, even in a national point of view, will be striking to

every one who is made acquainted with the fact, that were my practice of thinner sowing general, the proportion saved each year would amount to much more than the annual average of the quantity of foreign corn imported into this country during the last fourteen years.

The total quantities of wheat and flour *imported* during the fourteen years ending with 1841, were as follows :—

	Qrs.
1828	590,929
1829	1,725,781
1830	1,663,283
1831	2,309,970
1832	469,902
1833	297,565
1834	176,321
1835	66,905
1836	241,743
1837	559,942
1838	1,371,957
1839	2,875,605
1840	2,432,765
1841	2,783,602
Total Qrs.,	17,566,270
Averaging per Annum Qrs.	1,254,733

The population of England, Scotland, and Wales, which at the end of the year 1831 amounted to 16,366,011 persons, had increased in 1841 to 18,666,761 persons. For the purpose of calculating the consumption of corn during the fourteen years ending with 1841, I consider the population to have averaged, during that period, 17,000,000 persons.

Taking the annual consumption of 17,000,000

persons at the ordinary allowance of a quarter of wheat to each person, it will amount to 17,000,000 quarters and deducting the quantity imported, 1,254,733 quarters, leaves the quantity annually consumed of our own growth to be 15,745,267 quarters.

Allowing that the average produce per acre of wheat grown in the kingdom is equal to twenty bushels, and that of these seventeen and a half bushels are appropriated for food, and two and a half bushels for seed, it follows that about 17,713,425 quarters must have been annually grown, and that to produce this quantity 7,085,370 acres must have been sown with wheat.

Now, to sow 7,085,370 acres at two and a half bushels of seed per acre, which is the ordinary allowance, there would be required 2,214,178 quarters. But to sow one bushel per acre, only 885,671 quarters would be required, so that the annual saving of seed would be 1,328,507 quarters; that is to say, 73,774 quarters more than the average of the annual importation of foreign corn the last fourteen years. And although I merely take the instance of wheat, I am at the same time proving what may be done with all other corn; for the saving in seed which I practise is in equal proportions with all other kinds of grain, and with equal success. Having thus proved the magnitude of the national saving capable of being made in seed-corn, and having shown that if my system of thin-

sowing were universally adopted, there would be no necessity, even with our present enlarged population, and without the advantage of increase in the crop, for the importation of any foreign corn, and that at once an actual saving to the farmers of arable land to the extent of half their rent may be made—I hope every practical farmer will be induced to give the thinner sowing a fair trial. Let parts of a field be drilled with one bushel of wheat per acre, at a foot apart, taking care to hand-hoe the same in the spring, and to have all weeds extirpated; and I promise that at harvest, supposing in all other respects the field to be alike, that these portions will yield the most and best sample.

The expense of seed wheat is generally 7s. or 8s. per bushel, and the difference between one and three bushels is therefore 14s. or 16s.—a saving per acre of some consequence; and if I be right that a larger and better crop will be obtained from the lesser quantity, I shall have done a good to the farmer that will enable him to compete with the foreign grower, and lower prices, and, by placing this country independent of any foreign supply, make all corn laws of little consequence; and for many years to come we may grow all we want, and to spare.

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3, Frederick's Place, Old Jewry, London.
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